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Financial Information Extraction using pre-defined and,, - Costantino (1997) (Correct) (1 citation)
for Natural Language Engineering, Department of Computer Science. Submitted for the degree of Doctor
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Oberon as an Implementation Language for COM Objects - Gutknecht (Correct)
1 Oberon as an Implementation Language for COM Objects Jurg Gutknecht, ETH Zurich E-mail
ftp.inf.ethz.ch/pub/publications/tech-reports/3xx/323.ps.gz

Generator of Connectors for SOFA/DCUP - Bulej (2002) (Correct)
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A Comparison Of Two Direct-Manipulation Gis User.. - James Richards Egenhofer (1995) (Correct) (1 citation)
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A Quick Overview of Larch/C++ - Cheon, Leavens (1994) (Correct) (6 citations)
techniques. Submitted for publication. Department of Computer Science 226 Atanasoff Hall Iowa Sate
specifications, class specifications, and template specifications. An extended example is given in
#93-18a June, 1993 (Revised June 1994) Keywords: interface specification, Larch/CCsubtype,
www.cs.iastate.edu/tech-reports/TR93-18a.ps

The Standard Template Library - Stepanov, Lee (1995) (Correct) (84 citations)
Shoreline Blvd. Mt. View, CA 94043 stepanov@mti.sgi.com Meng Lee Hewlett-Packard Laboratories 1501 Page
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Efficient Indexing for Object Recognition Using Large.. - Stevens, Anderson.. (1997) (Correct)
Charles W. Anderson J. Ross Beveridge Department of Computer Science Colorado State University Fort
Abstract Template matching is an effective means of locating
www.cs.colostate.edu/~anderson/pubs/stevens-icnn97.ps.gz

A Negotiating Agents Model for the Provision of Flexible.. - Rizzo Utting (Correct)
Telephony Services M. Rizzo I. A. Utting Dept. of Computer Science &A.I. Computing Laboratory
Current telephone systems suffer from a service interface bottleneck problem, wherein network resources
is primarily due to a coarse-grain service interface, coupled with the inability to support
www.labs.bt.com/people/rizzom/ISADS97.ps.gz

A Program Building Tool for Parallel Applications - Ahmed, Carriero, Gelernter (1994) (Correct) (5 citations)
Nicholas Carriero and David Gelernter Department of Computer Science Yale University December 1, 1993
www.cs.yale.edu/HTML/YALE/CS/Linda/dimacs.ps

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A Multimodal Computer-augmented Interface for Distributed Applications Luc JULIA ab
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Adaptive Chain Coding for Arbitrary Curves - Chang Kulkarni (Correct)
(609) 258-6727 2 Department of Electrical and Computer Engineering Clarkson University, Potsdam, NY
chain coding algorithm based on using multiple templates is developed. The algorithm differentially

www-video.eecs.berkeley.edu/~nlachang/Research/spie92.ps.gz

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Tsutomu Owa Brian N. Bershad Department of Computer Science and Engineering, University of
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inexpensive processing to occur on the network interface. We are investigating how a system design
www.cs.berkeley.edu/~rmartin/papers/mef-nossdav98.ps

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Talking Vs Taking: Speech Access To Remote Computers Nicole Yankelovich Sun Microsystems
tools to help people create robust speech user interfaces (SUIs)We are also developing prototype
test the framework and to experiment with speech interface design ideas. Our eventual goal is to allow
www.sunlabs.com/research/speech/publications/chi94/CHI94Short.ps

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Information Systems Alon Y. Levy Levy@research.att.com Divesh Srivastava Divesh@research.att.com Thomas

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variety of information sources and disparity of interfaces makes the task of easily locating and
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which to implement generic multiprocessor systems is commodity hardware and software, usually in the form
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could greatly benefit from the standard interface defined by CORBA both TP-monitors and CORBA
www.inf.ethz.ch/personal/iks/publications/files/ahst97.ps.gz

Experiencing - Objects An (Correct)
David Ungar ungar@self.stanford.edu) Computer Systems Laboratory, Stanford University,
design, efficient implementation, and a user interface tightly coupled to the language. SELF is a
we have taken with the design of the user interface for SELF. Detailed description of the language
www.sunlabs.com/research/self/papers/ui.ps.Z

A Unified Framework for Constructing Multimodal.. - Cheyer, Julia, Martin (1998) (Correct) (1 citation)
Avenue, Menlo Park, CA 94025 USA cheyer@ai.sri.com, julia@speech.sri.com 2 LIMSI-CNRS, BP 133,
as possible using either standard graphical interface devices or multimodal combinations of pen and
part of the system. Keywords: Multimodal user interface, Wizard of Oz user studies, distributed agents
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1101 Email: stf,kanani,carosio)geod.ethz.ch Commission Iii,working Group Iv/iii.1 Key Words:
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Institute of Technology Department of Electrical and Computer Engineering Wright-Patterson Air Force Base,
for a Generic Expert System Intelligent User Interface 1 Robert A. Harrington, Sheila Banks, and
thus requiring domain independence. The user interface for a generic expert system must contain an
www.afit.af.mil/Schools/EN/ENG/LABS/AI/Papers/Conference/rah-sbb-esj:ictai-96-2.ps.gz

Coordinating Distributed Objects With Declarative Interfaces - Narinder Singh (1995) (Correct) (9 citations)
With Declarative Interfaces Narinder P. Singh Computer Science Department, Stanford University
Coordinating Distributed Objects With Declarative Interfaces Narinder P. Singh Computer Science Department,
that provide a declarative specification of their interface, and system programs that reason with these
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Extraction using pre-defined and user-definable Templates in the LOLITA System. Marco Costantino
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Query Service as well as the Dynamic Skeleton Interface. Keywords Database Access, CORBA, Object
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System Configuration Tool (SCOT) by a full CORBA interface. Its Web Interface has been extended by a
Tool (SCOT) by a full CORBA interface. Its Web interface has been extended by a generic generator for
www.isa.informatik.tu-darmstadt.de/VS/Publikationen/papers/kivs99-cosnmpgw.ps.gz

Distributed Processing over Stand-alone Systems and.. - Alonso, Hagen, Schek.. (1997)   (Correct)   (5 citations)
systems, TP-monitors, persistent queuing systems, CORBA implementations, workflow management systems, or
Middleware Systems [abfs97]Space Template Space Config Space History Database Services
could greatly benefit from the standard interface defined by CORBA both TP-monitors and CORBA
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- Bonobo, component model used in GNOME, based on CORBA -UNO, OpenOffice.org's Unified Network
Objects
17 3.1 Conceptual model of interactions 17 3.2 Template interface definition 19 3.2.1 Motivation for
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A Coordination Kernel for Coupling Heterogeneous Programming.. - Bapst, Krone   (Correct)
least two prominent developments, ToolBus [5] and Corba [1] have already addressed this problem. In the
is considered as one instantiation of a generic template. There is a way to designate both an agent kind
are discussed. We show how a twofold interface definition language would improve the
ftp-iiuf.unifr.ch/pub/giraf/papers/coupling.ps.gz

METU Interoperable Database System - Dogac Dengi (1995)   (Correct)   (9 citations)
management model. It is implemented on top of a CORBA compliant ORB, namely, ObjectBroker. MIND
invocation, the client uses generated code templates (stubs) that cannot be changed at run time. In
global transaction manager, a schema integrator, interfaces to supported database systems and a user
ftp.srdc.metu.edu.tr/pub/mind/papers/sigmodrec95.ps.Z

Object Interconnections - Object Adapters   (Correct)
column, we'll start presenting issues surrounding CORBA Object Adapters (OAs)We'll focus on what
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A Protection Scheme for a CORBA Environment - Hagimont, Huet, Mossière (1997)   (Correct)   (1 citation)
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an application only in terms of the application's interface. The idea is implemented by managing protection
designers and administrators with an extended interface definition language (IDL [OMG 91]in which the
sirac.imag.fr/PUB/97/97-ecoop-wkshp-PUB.ps.gz

A Comparison Of Two Direct-Manipulation Gis User.. - James Richards Egenhofer (1995)   (Correct)   (1 citation)
parts, referred to as the data cube and the template. Both parts are manipulated independently
www.spatial.maine.edu/~max/cubesVsTemplates.pdf

Expressing and Enforcing Timing Constraints in a.. - Wolfe, DiPippo.. (1997)   (Correct)   (9 citations)
Enforcing Timing Constraints in a Dynamic Real-Time CORBA System Victor Fay Wolfe, Lisa Cingiser DiPippo,
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Object Interconnections - Time-Independent Invocation and.. - Schmidt, Vinoski   (Correct)
This column focuses on a new feature defined in the CORBA Messaging Specification [1] called
(AMI) features. AMI uses the static invocation interface (SII) to send requests asynchronously and
router implements standard CORBA Messaging IDL interfaces. Therefore, it's identified by a normal CORBA
www.iona.com/hyplan/vinoski/col17.ps.Z

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applications distributed in an enterprise (e.g.CORBA [14, 12, 13]They enable objects residing in
Coordinating Distributed Objects With Declarative Interfaces Narinder P. Singh Computer Science Department,
that provide a declarative specification of their interface, and system programs that reason with these
cuiwww.unige.ch/OSG/people/jvitek/Resources/Archive/oopslaSingh.ps.gz

Achieving Interoperability between CORBA and DCE Applications.. - Yang, Vogel (1996)   (Correct)   (5 citations)
-March 1, 1996 Achieving Interoperability between CORBA and DCE Applications Using Bridges Zhonghua Yang
J. Indulska, and A. Vogel. 1995)to locate a template of the bridge or a trader [A. Beitz and M.
ffl transformation and substitutability of interfaces types to advertise and find interface
www.dstc.edu.au/AU/projects/iwt/icdp96.ps

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Expressing and Enforcing Timing Constraints in a CORBA Environment Lisa Cingiser DiPippo, Roman Ginis
www.infosys.tuwien.ac.at/Research/Corba/archive/special/ri-tr97-252.ps.gz

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of communication middleware (such as CORBA and traditional RPC toolkits) incur considerable
lower-level mechanisms (such as socket-based C interfaces and Cwrappers for sockets) to higher-level
www.infosys.tuwien.ac.at/Research/Corba/archive/special/ATM-Performance.ps.gz

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specifications, class specifications, and template specifications. An extended example is given in
#93-18a June, 1993 (Revised June 1994) Keywords: interface specification, Larch/CCsubtype,
paper gives a quick overview of Larch/Can interface specification language for CThrough
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operations, e.g.machine setup, or as a guardian interface [12]The PC and Sun Sparc 20 are used for cell
the cell management activities, specifically the interfaces to manufacturing devices and the dispatching of
dancer.ca.sandia.gov/pub/carmen/hicss97.ps

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A Binding Architecture for Multimedia Networks - Lazar, Bhonsle, Lim (1994)　(Correct)　(43 citations)
The binding interface base, including the interface inheritance diagram and some of the interface
Corba Corba 9 September 18, 1994 4.1 Interface Inheritance Diagram The Interface Inheritance
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A Delegation-based Object Calculus with Subtyping - Kathleen Fisher (1995)　(Correct)　(35 citations)
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www.research.att.com/~kfisher//files/fct95.ps

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language features (such as encapsulation, interface inheritance, parameterized types, and exception
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an object-oriented architecture with object interface inheritance, ORB interoperability and platform
object invocation, services use generally interface inheritance and object factories to provide powerful
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MCORBA: A CORBA Binding for Mercury - Jeffery, Dowd, Somogyi (1999)　(Correct)　(7 citations)
makes the implementation of CORBA's interface inheritance straightforward, and makes it trivial for
super are also available on sub. We map IDL interface inheritance directly onto type class inheritance. In
www.cs.mu.oz.au/research/mercury/information/papers/mcorba_padl99.ps.gz

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polymorphism can be used to: encode the (interface) inheritance structure of interface pointers connect
instantiation to model (single, interface) inheritance. In retrospect the idea is quite obvious,
research.microsoft.com/~simonpj/Papers/comserve.ps.gz

An Implementation of UNIX on an object-oriented operating system - Khalidi, Nelson (1993)　(Correct)
(23 citations)
object-oriented it supports the notion of interface inheritance. Spring supports both notions of single
both notions of single and multiple interface inheritance. Interface inheritance is an important
notions of single and multiple interface inheritance. Interface inheritance is an important factor in
www4.informatik.uni-erlangen.de/~tsthiel/Papers/Spring-Unix.ps.gz

The Spring Virtual Memory System - Khalidi, Nelson (1993)　(Correct)　(15 citations)
object-oriented it supports the notion of interface inheritance. An interface that accepts an object of
definition language that provides interface inheritance. The base MACH system deals with virtual
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Slicing Object-Oriented Programs - Chen', Wang (1997)　(Correct)　(7 citations)
is not considered, such as implicit method interface inheritance and object creation. If a method
www.fit.ac.jp/~zhao/tmp/apsec97.pdf

Creation of Views for Reuse of Software with Different Data.. - Novak, Jr. (1997)　(Correct)　(7 citations)
are termed implementation inheritance and interface inheritance in object-oriented programming [9]When
of object These are termed implementation inheritance and interface inheritance in object-oriented
www.cs.utexas.edu/users/novak/tose95.ps

An Inheritance-Based Technique for Building.. - Keidar, Khazan.. (2000)　(Correct)　(2 citations)
simulation, refinement, specialization by inheritance, interface extension. 1 INTRODUCTION Formal

theory.lcs.mit.edu/~idish/ftp/icse00.ps.gz

A Multi-threaded Higher-order User Interface Toolkit - Gansner, Reppy (1993)　(Correct)　(10 citations)
sophisticated module system provide similar interface inheritance. Most importantly, our experience, and
www.ii.uni.wroc.pl/~tomasz/sml/doc/papers/93-trends-gansner.ps.gz

Formalizing Composable Software Systems - A Research Agenda - Nierstrasz, Schneider, Lumpe (1996)
(Correct)　(7 citations)
treat all software entities uniformly. The inheritance interface, for example, is typically not typed
iamftp.unibe.ch/pub/scg/Papers/formalizingComposition.ps.gz

Using Interface Inheritance to Address Problems in System.. - Hamilton, Radia (1994)　(Correct)　(8 citations)
1 Using Interface Inheritance to Address Problems in System Software
sanjay.radia@eng.sun.com 2 3 Using Interface Inheritance to Address Problems in System Software
interface evolution using interface inheritance. Interface inheritance has proven a very good match
www4.informatik.uni-erlangen.de/~tsthiel/Papers/Spring-InterfaceInheritance-SMLI-TR-93-21.ps.gz

Ensuring Correctness of Java Frameworks: A Formal Look at JCF - Mikhajlova, Sekerinski (1999)　(Correct)
(2 citations)
frameworks employing separate interface inheritance and implementation inheritance
subtyping polymorphism in Java is based on interface inheritance, behavioral conformance of subinterfaces
www.tucs.fi/cgi-bin/getps.cgi/publications/techreports/TR250.ps

Applying Program Dependence Analysis To Java Software - Zhao (1998)　(Correct)　(3 citations)
v if u is an extending class of v. ffl Interface-inheritance dependences capture the inheritance
interfaces. Informally, an interface u is interface-inheritance dependent on an interface v if u is an
www.fit.ac.jp/~zhao/pub/ps/ics98.ps.gz

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IUnknown

The **IUnknown** interface lets clients get pointers to other interfaces on a given object through the **QueryInterface** method, and manage the existence of the object through the **IUnknown::AddRef** and **IUnknown::Release** methods. All other COM interfaces are inherited, directly or indirectly, from **IUnknown**. Therefore, the three methods in **IUnknown** are the first entries in the VTable for every interface.

When to Implement

You must implement **IUnknown** as part of every interface. If you are using C++ multiple inheritance to implement multiple interfaces, the various interfaces can share one implementation of **IUnknown**. If you are using nested classes to implement multiple interfaces, you must implement **IUnknown** once for each interface you implement.

When to Use

Use **IUnknown** methods to switch between interfaces on an object, add references, and release objects.

Methods in Vtable Order

IUnknown Methods	Description
QueryInterface	Returns pointers to supported interfaces.
AddRef	Increments reference count.
Release	Decrements reference count.

Requirements

Windows NT/2000/XP: Requires Windows NT 3.1 or later.
Windows 95/98: Requires Windows 95 or later.
Header: Declared in unknwn.h.

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<!--
var axel = Math.random() + "";
var ord = axel * 1000000000000000000 + "?";

//This part of script alleviates a Netscape document.write bug
<!--
NS4 = document.layers;
if (NS4) {
origWidth = innerWidth;
origHeight = innerHeight;
}
function reDo() {
if (innerWidth != origWidth || innerHeight != origHeight)
location.reload();
}
if (NS4) onresize = reDo;
//-->
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yword.value +
"/NS-1/BEFID-" + document.frmGSRequest3.catval.value + "/linkin_id-301
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document.location.href = newLocation;  return; } </SCRIPT><table cellp
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href="http://hardwarecentral.dealtime.com/BannerIn/1,2844,,00.html?lin
kin_id=3019880&n
FormId=38733-72-2073&path=/Pages/CategoryV2" target="blank">Computers<
/a><br><a
href="http://hardwarecentral.dealtime.com/xKW-digital_camera/FN-Digita
l_Cameras/DL-0/N
S-1/linkin_id-3019881/GS.html" target="blank">Digital Cameras</a><br><
a
href="http://hardwarecentral.dealtime.com/xCP-Home_Theater_Complete_Sy
stems~FD-1401~li
nkin_id-3019882" target="blank">Home Theatre</a><br><a
href="http://hardwarecentral.dealtime.com/BannerIn/1,2844,,00.html?lin
kin_id=3019883&n
FormId=38744-95-1&path=/Pages/CategoryV2" target="blank">Video
Games</a><br></font></td><td bgcolor="#BDD9C4"><font size="1" face="ve
rdana"><a
href="http://hardwarecentral.dealtime.com/xPP-PC_Notebooks~linkin_id-3
019884"
target="blank">Laptops</a><br><a
href="http://hardwarecentral.dealtime.com/BannerIn/1,2844,,00.html?lin
kin_id=3019885&n
FormId=38863-368-1&path=/Pages/CategoryV2C" target="blank">Software</a
```

```
><br><a
href="http://hardwarecentral.dealtime.com/BannerIn/1,2844,,00.html?lin
kin_id=3019886&n
FormId=38732-3-1&path=/Pages/CategoryV2" target="blank">Electronics</a
><br><a
href="http://hardwarecentral.dealtime.com/xPP-Personal_Organizers~link
in_id-3019887"
target="blank">PDA's</a><br></font></td><td width="5" background=""><i
mg
src="http://www.codeguru.com/RealMedia/ads/Creatives/House_Dealtime_Pr
omotion_1e/sp.gi
f" width="5" height="1" border="0" alt=""></td></tr></table></td></tr>
</table><IMG
SRC="http://www.codeguru.com/RealMedia/ads/adstream_lx.cgi/ew/ewsoftwa
re/www.codeguru.
com/atl/templateinterface.shtml/706941094/468x60-1/House_Dealtime_Prom
otion_1e/dealtim
e_750_2.html/3366343765343033336435313834613130?_RM_EMPTY_" WIDTH=1 HEIG
HT=1 BORDER=0>
    </center>
    </TD>
  </TR>

</TABLE>
<hr>
<!-- end logo and top banner ad table -->

<!-- begin lower outer table -->

<TABLE cellpadding="0" cellspacing="0" border="0">
<TR>
<TD bgcolor=#efefef VALIGN="TOP" WIDTH="90">




<table border=1 cellspacing=0 cellpadding=0>
<tr><td>

<table border=0 cellpadding=5 cellspacing=0 width=150>
    <tr>
      <td align="center">
       <A HREF="/">
         <IMG SRC="/images/logo_cobrand.gif" BORDER="0" ALT="Developer.
com">
      </a>
      </td>
    </tr>
```

```
    <tr>
      <td align="center">
      <A
HREF="http://www.codeguru.com/RealMedia/ads/click_lx.cgi/ew/ewsoftware
/www.codeguru.co
m/atl/templateinterface.shtml/1035727206/125x125-1/House_Career_Channe
l_26g/jobs-125.g
if/3366343765343033336435313834613 0" target="_top"><IMG
SRC="http://www.codeguru.com/RealMedia/ads/Creatives/House_Career_Chan
nel_26g/jobs-125
.gif" ALT="" BORDER="0"></A><img
src="http://www.codeguru.com/RealMedia/ads/adstream_lx.cgi/ew/ewsoftwa
re/www.codeguru.
com/atl/templateinterface.shtml/1035727206/125x125-1/House_Career_Chan
nel_26g/jobs-125
.gif/3366343765343033336435313834613 0?_RM_EMPTY_" Width="1" Height="1"
 Border="0">
      </td>
    </tr>
</table>

</td></tr>
<tr><td align="center">
  <table width="100%" border=0 cellpadding=5 cellspacing=0><tr><td
align="center"><font size=-1>
<a
href="http://hardwarecentral.dealtime.com/BannerIn/1,2844,,00.html?lin
kin_id=3012258&n
FormId=38733-72-1&path=/Pages/CategoryV2" target="new">Shop for Softwa
re</a></font>
  </td></tr></table>
</td></tr>
<tr><td>
  <table width=130 border=0 cellpadding=5 cellspacing=0>
    <tr>
      <td>
        <!-- SEARCH FORM-->
        <form method="post" action="http://search.internet.com/codegur
u.earthweb.com">
          <input type="hidden" name="IC_StartNumber" value="0">
          <input type="hidden" name="IC_BatchSize" value="10">
          <input type="hidden" name="IC_RelevanceThreshold" value="30"
>
          <input type="hidden" name="IC_QueryDatabase" value="codegur
u.earthweb.com">
          <input type="text" name="IC_QueryText" value="" size="10">
          <input type="submit" value="Search">
        </form>
```

```html
        <!-- END OF SEARCH FORM -->
      </td>
    </tr>
  </table>

  <table border=0 cellpadding=5 cellspacing=0 width=150>
    <tr><td><span class="navBarH1">CodeGuru Sites</span></td></tr>
    <tr><td nowrap>
        <small>
          <a href="/index.shtml">Visual C++ / MFC / C++</a><br>
          <a HREF="/csharp/index.shtml">.NET (C# and more)</a><br>
          <a href="/vb/index.shtml">Visual Basic</a><br>
          <a href="http://www.gamelan.com">Gamelan (Java)</a><br>
          <a href="http://www.jars.com">JARs (Java Applets)</a><br>
          <a  href="http://www.developer.com">Developer.com</a><br>
          <hr>
        </small>


    <a href="/SubmissionsGuidelines.html">
    <font face="verdana, helvetica" color="#000000" size=1>
       submission guidelines
    </font></a>
<br>

<hr>

    </td></tr>


    <tr><td><span class="navBarH1">Interact</span></td></tr>
    <tr><td nowrap>
        <small>
          <a href="/forum">Discussion Boards</a><br>
          <a href="http://e-newsletters.internet.com">Newsletters (sub
scribe)</a><br>
          <a href="/Guestbook/guestbook.shtml">Guestbook</a><br>
          <a href="/cgi-bin/recommend.cgi">Recommend Us!</a><br>
          <hr>
        </small>
    </td></tr>


    <tr><td><span class="navBarH1">Of Interest</span></td></tr>
    <tr><td nowrap>
        <small>
      <a href="/bookList/index.shtml">Book List</a> <img
src="/images/new.gif"><br>
```

```
    <a HREF="/bookReviews/index.shtml">Book Reviews</a><br>
    <a href="/newsletters/index.shtml">Newsletters (archived)</a><b
r>
       <a href="/about.shtml">About Us</a><br>
       <a href="/authorlist/index.html">Authors</a> <!--<img
src="/images/new.gif">--><br>
       <hr>
     </small>
   </td></tr>

   <tr><td><span class="navBarH1">Article Sections</span></td></tr>


   <tr><td>
     <span class="navBarH2">Other Section</span><br>
     <small>
     <a href="/csharp/index.shtml">.NET</a><br>
     <a href="/csharp/index.shtml">C#</a><br>
     <a href="/vb/index.shtml">Visual Basic</a><br>
     </small>
   </td></tr>

   <tr><td>
     <span class="navBarH2">C++</span>
     <br>
     <small>
       <a href="/algorithms/index.shtml">algorithms & formulas</a></b
r>
       <a href="/cpp_mfc/index.shtml">c++ & mfc</a><br>
       <a href="/date_time/index.shtml">date & time</a><br>
       <a href="/cpp_managed/index.shtml">managed C++</a> <img
src="/images/new.gif"></br>
       <a href="/string/index.shtml">string</a><br>
     </small>
   </td></tr>

   <tr><td>
     <span class="navBarH2">COM-based Technologies</span>
     <br>
     <small>
       <a href="/atl/index.shtml">atl & wtl</a><br>
       <a href="/activex/index.shtml">com & activex</a><br>
       <a href="/complus/index.shtml">com+</a><br>
       <a href="/shell/index.shtml">shell programming</a><br>
     </small>
   </td></tr>

   <tr><td>
```

```
<span class="navBarH2">Controls</span>
<br>
<small>
  <a href="/buttonctrl/index.shtml">button control  </a><br>
  <a href="/combobox//index.shtml">combobox  </a><br>
  <a href="/editctrl/index.shtml">edit control  </a><br>
  <a href="/imagelist/index.shtml">imagelist control </a><br>
  <a href="/listbox/index.shtml">listbox control  </a><br>
  <a href="/listview/index.shtml">listview control  </a><br>
  <a href="/menu/index.shtml">menu  </a><br>
  <a href="/controls/index.shtml">other controls </a><br>
  <a href="/propertysheet/index.shtml">property sheet  </a><br>
  <a href="/richedit/index.shtml">rich edit control  </a><br>
  <a href="/staticctrl/index.shtml">static control  </a><br>
  <a href="/statusbar/index.shtml">status bar </a><br>
  <a href="/toolbar/index.shtml">toolbar  </a><br>
  <a href="/treeview/index.shtml">treeview control </a><br>
</small>
</td></tr>

<tr><td>
  <span class="navBarH2">Data</span>
  <br>
  <small>
<!--
  <a href="/ado/index.shtml">ado & oledb</a><br>
  <a href="/odbc/index.shtml">odbc</a><br>
  <a href="/mfc_database/index.shtml">mfc database classes</a><b
r>
  <a href="/office_db/index.shtml">office products</a><br>
  <a href="/oracle/index.shtml">oracle</a><br>
  <a href="/serialization/index.shtml">serialization</a><br>
  <a href="/sqlserver/index.shtml">sql server</a><br>
-->
  <a href="/mfc_database/index.shtml">database</a><br>
  <a href="/data-misc/index.shtml">miscellaneous</a><br>
  </small>
</td></tr>

<tr><td>
  <span class="navBarH2">Frameworks</span>
  <br>
  <small>
<!--
  <a href="/component_frameworks/index.shtml">component framewor
ks</a><br>
  <a href="/printing_frameworks/index.shtml">printing frameworks
</a><br>
```

```
                        templateinterface[1]
      <a href="/ui_frameworks/index.shtml">ui frameworks</a><br>
  -->
      <a href="/advancedui/index.shtml">ui & printing frameworks</a>
<br>
    </small>
  </td></tr>

  <tr><td>
    <span class="navBarH2">Graphics & Multimedia</span>
    <br>
    <small>
      <a href="/bitmap/index.shtml">bitmaps & palettes</a><br>
      <a href="/directx/index.shtml">directx</a><br>
      <a href="/gdi/index.shtml">gdi</a><br>
      <a href="/multimedia/index.shtml">multimedia</a><br>
      <a href="/opengl/index.shtml">opengl</a><br>
    </small>
  </td></tr>

  <tr><td>
    <span class="navBarH2">Internet & Networking</span>
    <br>
    <small>
      <a href="/ieprogram/index.shtml">ie programming</a><br>
      <a href="/internet/index.shtml">internet protocols</a><br>
      <a href="/isapi/index.shtml">isapi</a><br>
      <a href="/network/index.shtml">network protocols</a><br>
    </small>
  </td></tr>

  <tr><td>
    <span class="navBarH2">Miscellaneous</span>
    <br>
    <small>
      <a href="/misc/index.shtml">miscellaneous</a><br>
      <a href="/samples/index.shtml">samples</a><br>
    </small>
  </td></tr>

  <!--
  <tr><td><span class="navBarH2">Security</span></td></tr>
  <tr><td><small>
    <a href="/cryptoapi/index.shtml">crypto api</a><br>
    <a href="/encryption/index.shtml">encryption/decryption</a><br>
    <br>
  </small></td></tr>
  -->
```

```
<tr><td>
  <span class="navBarH2">Visual Studio</span>
  <br>
  <small>
<!--
    <a href="/addins/index.shtml">add-ins</a><br>

    <a href="/tips/index.shtml">editor tips</a><br>
    <a href="/macros/index.shtml">macros</a><br>
-->
    <a href="/debug/index.shtml">debugging</a><br>
    <a href="/devstudio_macros/index.shtml">add-ins & macros</a><b
r>
    <a href="/tips/index.shtml">editor tips</a><br>
  </small>
</td></tr>

<tr><td>
  <span class="navBarH2">Windows Programming</span>
  <br>
  <small>
    <a href="/ce/index.shtml">ce</a><br>
    <a href="/clipboard/index.shtml">clipboard</a><br>
    <a href="/dll/index.shtml">dll</a><br>
    <a href="/files/index.shtml">file & folder</a><br>
    <a href="/help/index.shtml">help systems</a><br>
    <a href="/printing/index.shtml">printing</a><br>
    <a href="/win32/index.shtml">win32</a><br>
    <a href="/system/index.shtml">system</a><br>
  </small>
</td></tr>

<tr><td>
  <span class="navBarH2">Windows &amp;<br> Dialogs</span>
  <br>
  <small>
    <a href="/console/index.shtml">console</a></br>
    <a href="/dialog/index.shtml">dialog</a><br>
    <a href="/docking/index.shtml">docking window</a><br>
    <a href="/doc_view/index.shtml">doc/view</a><br>
    <a href="/splitter/index.shtml">splitter</a><br>
  </small>
  <hr>
</td></tr>

</table>

<!-- JOB BUTTON -->
```

```
                          templateinterface[1]
    <table border=0 cellpadding=5 cellspacing=0 width=150>
    <tr><td align="center">
       <a href="http://jobs.internet.com" target="new">
          <IMG SRC="http://www.codeguru.com/jobs.gif" alt="[Internet Jo
bs]">
       </a>
    </td></tr>
    </table>
<!-- End of Job Button -->

<!-- Commerce bar -->
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    <font face="Arial" color="white" size="1" >
    <b><center>internet.commerce</center></b></font>
    </td></tr>
    <tr bgcolor="lightgrey"><td>
    <font face="Arial" size="1" >
    <a href="http://www.internet.com/partners/">Partners &amp; Affilia
tes</A><BR>
<a
href="http://www.codeguru.com/RealMedia/ads/click_lx.cgi/ew/ewsoftware
/www.codeguru.co
m/atl/templateinterface.shtml/285085689/cp1/LagGarde_8d/build.html/336
6343765343033336
4353138346130">Build an Online Store</a>
<IMG
SRC="http://www.codeguru.com/RealMedia/ads/adstream_lx.cgi/ew/ewsoftwa
re/www.codeguru.
com/atl/templateinterface.shtml/285085689/cp1/LagGarde_8d/build.html/3
3663437653430333
364353138346130?_RM_EMPTY_" WIDTH=1 HEIGHT=1><BR>
<a
href="http://www.codeguru.com/RealMedia/ads/click_lx.cgi/ew/ewsoftware
/www.codeguru.co
m/atl/templateinterface.shtml/611196407/cp2/Top_Hosts_28c/search.html/
3366343765343033
3364353138346130">Search Web Hosting</a>
<IMG
SRC="http://www.codeguru.com/RealMedia/ads/adstream_lx.cgi/ew/ewsoftwa
re/www.codeguru.
com/atl/templateinterface.shtml/611196407/cp2/Top_Hosts_28c/search.htm
l/33663437653430
333364353138346130?_RM_EMPTY_" WIDTH=1 HEIGHT=1 BORDER=0>


<BR>
<a href="http://www.dotster.com">Web Hosting</a>
```

```
<IMG
SRC="http://www.codeguru.com/RealMedia/ads/adstream_lx.cgi/ew/ewsoftwa
re/www.codeguru.
com/atl/templateinterface.shtml/936820289/cp3/Dotster_8e/webhosting.ht
ml/3366343765343
0333364353138346130?_RM_EMPTY_" WIDTH=1 HEIGHT=1 BORDER=0><BR>
<a
href="http://www.codeguru.com/RealMedia/ads/click_lx.cgi/ew/ewsoftware
/www.codeguru.co
m/atl/templateinterface.shtml/193956434/cp4/ConsumerInfo.com_5d/Consum
erInfotext.html/
336634376534303333364353138346130">FREE Credit Report</a>
<IMG
SRC="http://www.codeguru.com/RealMedia/ads/adstream_lx.cgi/ew/ewsoftwa
re/www.codeguru.
com/atl/templateinterface.shtml/193956434/cp4/ConsumerInfo.com_5d/Cons
umerInfotext.htm
l/336634376534303333364353138346130?_RM_EMPTY_" WIDTH=1 HEIGHT=1 BORDER
=0>




<BR>
<a
href="http://www.codeguru.com/RealMedia/ads/click_lx.cgi/ew/ewsoftware
/www.codeguru.co
m/atl/templateinterface.shtml/513723406/cp5/Interspire_2d/reducesuppor
ttime.html/33663
4376534303333364353138346130">Reduce Support Time</a>
<IMG
SRC="http://www.codeguru.com/RealMedia/ads/adstream_lx.cgi/ew/ewsoftwa
re/www.codeguru.
com/atl/templateinterface.shtml/513723406/cp5/Interspire_2d/reducesupp
orttime.html/336
634376534303333364353138346130?_RM_EMPTY_" WIDTH=1 HEIGHT=1 BORDER=0>




<BR>
<a href="http://www.business.com/internet/search.asp">Business Search<
/a>
<IMG
SRC="http://www.codeguru.com/RealMedia/ads/adstream_lx.cgi/ew/ewsoftwa
re/www.codeguru.
com/atl/templateinterface.shtml/840277398/cp6/Business_com_17c/Busines
sSearch.html/336
634376534303333364353138346130?_RM_EMPTY_" WIDTH=1 HEIGHT=1 BORDER=0><B
R>
<a
```

```
href="http://www.codeguru.com/RealMedia/ads/click_lx.cgi/ew/ewsoftware
/www.codeguru.co
m/atl/templateinterface.shtml/102682087/cp7/House_3a/1affiliateprogram
.html/3366343765
34303333643531383346130">#1 Affiliate Program</a>
<IMG
SRC="http://www.codeguru.com/RealMedia/ads/adstream_lx.cgi/ew/ewsoftwa
re/www.codeguru.
com/atl/templateinterface.shtml/102682087/cp7/House_3a/1affiliateprogr
am.html/33663437
6534303333643531383346130?_RM_EMPTY_" WIDTH=1 HEIGHT=1 BORDER=0>


<BR>
<a
href="http://www.codeguru.com/RealMedia/ads/click_lx.cgi/ew/ewsoftware
/www.codeguru.co
m/atl/templateinterface.shtml/1484266633/cp8/ProSavvy_29c/FindaConsult
ant.html/3366343
765343033336435313838346130" target=new>Find a Consultant</a>
<IMG
SRC="http://www.codeguru.com/RealMedia/ads/adstream_lx.cgi/ew/ewsoftwa
re/www.codeguru.
com/atl/templateinterface.shtml/1484266633/cp8/ProSavvy_29c/FindaConsu
ltant.html/33663
4376534303333643531383346130?_RM_EMPTY_" WIDTH=1 HEIGHT=1><BR>
<a
href="http://www.codeguru.com/RealMedia/ads/click_lx.cgi/ew/ewsoftware
/www.codeguru.co
m/atl/templateinterface.shtml/1822142658/cp9/Mamma.com_25d/SubmitYourS
ite.html/3366343
765343033336435313838346130" target=new>Submit Your Site</a>
<IMG
SRC="http://www.codeguru.com/RealMedia/ads/adstream_lx.cgi/ew/ewsoftwa
re/www.codeguru.
com/atl/templateinterface.shtml/1822142658/cp9/Mamma.com_25d/SubmitYou
rSite.html/33663
4376534303333643531383346130?_RM_EMPTY_" WIDTH=1 HEIGHT=1><BR>
<a
href="http://www.codeguru.com/RealMedia/ads/click_lx.cgi/ew/ewsoftware
/www.codeguru.co
m/atl/templateinterface.shtml/1059658904/cp10/Tradepub.com_27d/TechMag
azinesFREE.html/
3366343765343033336435313838346130" target=new>Tech Magazines - FREE</a>
<IMG
SRC="http://www.codeguru.com/RealMedia/ads/adstream_lx.cgi/ew/ewsoftwa
re/www.codeguru.
com/atl/templateinterface.shtml/1059658904/cp10/Tradepub.com_27d/TechM
```

```
agazinesFREE.htm
1/3366343765343033336435313834 6130?_RM_EMPTY_" WIDTH=1 HEIGHT=1><BR>

      </font>
      </td></tr>
      </table>
<!-- End of Commerce bar -->

<p><p>
<SCRIPT LANGUAGE="javascript">
function SetFormAction() {
 newLocation = "http://hardwarecentral.dealtime.com/xKW-" +
document.frmGSRequest.keyword.value + "/NS-1/linkin_id-3011678/GS.html
";
 document.location.href = newLocation;
 return;
}
</script>


<link rel=stylesheet type="text/css" href="/icom_includes/special/deal
time/style.css">
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dth="125">
 <TR>
  <TD>
    <table cellpadding="2" cellspacing="0" border="0" width="125" bgcol
or="#FFFFCC">
         <tr>
         <td align="center" width="125"><img
src="/icom_includes/special/dealtime/hc_logo.gif" alt="" border="0">
         <br><font class="normal" color="#4D4D4D"><b>Compare products,
 prices, and
stores at Hardware Central!</b></font></td>
         </tr>
         <tr>
         <td align="center" class="norm" width="125"><br>
         <B><A
HREF="http://hardwarecentral.dealtime.com/BannerIn/1,2844,,00.html?lin
kin_id=3011654&n
FormId=38733-72-1&path=%2FPages%2FCategoryV2">Computers</a></b>
         <BR>
         <A
HREF="http://hardwarecentral.dealtime.com/xPP-Desktops~linkin_id-30116
55">Desktops</a>
'
         <br>
         <A
```

HREF="http://hardwarecentral.dealtime.com/xPP-Notebooks_Mac~linkin_id-
3011656">Mac

& <A HREF="http://hardwarecentral.dealtime.com/xPP-PC_Notebooks~linkin
_id-3011657">PC
Notebooks,

         <A
HREF="http://hardwarecentral.dealtime.com/xPP-Monitors~linkin_id-30116
58">Monitors

, <A
HREF="http://hardwarecentral.dealtime.com/xPP-Scanners~linkin_id-30116
59">Scanners

'

         <A
HREF="http://hardwarecentral.dealtime.com/xPP-Web_Cameras~linkin_id-30
11660">Webcams</
a>, <A
HREF="http://hardwarecentral.dealtime.com/xPP-Personal_Organizers~link
in_id-3011661">P
DA's,

<A
HREF="http://hardwarecentral.dealtime.com/BannerIn/1,2844,,00.html?lin
kin_id=3011662&n
FormId=38733-72-1&path=%2FPages%2FCategoryV2">more...

         <B><A
HREF="http://hardwarecentral.dealtime.com/BannerIn/1,2844,,00.html?lin
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FormId=38863-368-1&path=%2FPages%2FCategoryV2C">Software
         <A
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linkin_id-301166
4">Creativity Applications,

<A
HREF="http://hardwarecentral.dealtime.com/xPP-Programming_Tools~linkin
_id-3011665">Pro
gramming Tools,

         <A
HREF="http://hardwarecentral.dealtime.com/xPP-Internet_and_Communicati
on_Applications~
linkin_id-3011666">Internet

         & <A
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on <A
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/FN-Programming_Tools/DL-0/NS-1/linkin_id-3011677/GS.html">Microsoft V
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.NET</a> Professional Edition or search for other development tools
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```
<CENTER><H3><FONT COLOR="#AOAO99">
Creating a Template Interface in IDL with its Template Implementation
in C++</title>
</FONT></H3></CENTER><HR>
```

This article was contribued by <A HREF="mailto:atlmaster@hotmail.com">
 Normand Roy
</A>
<p>
Having the possibility of creating a template object, like a "CMap", w
ith a COM
interface for accessing remotly objects might come handy. Although, fa
r from being
trivial, it's possible to achieve with ATL. The "anti-VARIANT" program
mers will cheer
this opportunity. Here follow step-by-step instructions to untrangle t
his use-to-be
problem.
</p>
<p>
I will use an object with one simple method as an exemple. This object
 is fully
implemented in the source code. The method will return the minimum of
two objects.
</p>
<p>
The interface will look like this:
</p>
<p>
<PRE><TT><FONT COLOR="#990000">
interface IMinumumTYPE : IUnknown
{
        HRESULT Min(TYPE a, TYPE b, TYPE *
pMim);
}
</FONT></TT></PRE>
</p>
<p>
The steps to create this object are:

1) Implementing the object template.
2) Defining the interface in IDL using preprocessor macros.
3) Adding entry in the main object map.
</p>
<p>
Implementing the object template.
</p>
<p>
<PRE><TT><FONT COLOR="#990000">
template<class
> TYPE, class T, const CLSID *
pclsid, WCHAR
wszModulename[] >
class CMinimumImpl : pu
blic
CComObjectRootEx&ltCComMultiThreadModel>,
                    public CComCoClass<

CMinimumImpl<TYPE,T,pclsid,wszModulename>, pclsid >,
                    public T
{

public:
        HRESULT __stdcall Min(TYPE a, TYPE
 b, TYPE *pMin
)
        {
                *pMin = (a < b ? a : b <
font
color=#220000>);
                return S_OK;
        }
BEGIN_COM_MAP(CMinimumImpl<font color=#2200
00>)
        COM_INTERFACE_ENTRY_IID(__uuidof<f
ont
color=#220000>(T), T <font color=#22
0000>)
END_COM_MAP()

        static HRESULT WINAPI UpdateRegistr
y(BOOL bRegister)
        {
                OLECHAR wszCLSID[45];
                StringFromGUID2(*pclsid, w
szCLSID, 45

```
                    templateinterface[1]
<font color=#220000>)</font>;

                _ATL_REGMAP_ENTRY regMap[] = { { L<font
color=#004488>"ObjName"</font>, wszModulename },


{ L<font color=#004488>"ObjCLSID"</font>, wszCLSID },


{ NULL, NULL } };

                <font color=#0000ff>return</font>
_Module.UpdateRegistryFromResourceD<font color=#220000>(</font> IDR_PO
LYREG,
bRegister, regMap <font color=#220000>)</font>;
        }

};

</FONT></TT></PRE>
</p>


<p>
There is only one tricky part: the registration of the object in the r
egistry. To
achieve this, we are using replacable parameters in the registry resou
rce file (.RGS).
That file is included with the project. Every instance of %ObjName% an
d %ObjCLSID%
will be replaced with the content of the vars wszModulename and wszCLI
SD. The object
support only one interface, it could support more but not needed in th
at case. The
interface supported is given as a template parameter. We will see now
how to define
that interface in your IDL file.
</p>
<p>
<b>Using prepocessor macros to define the interface in IDL.</b>
</p>
<p>
Four information is needed in the template object to be able to create
 the interface
ant register it. The name of the object, the object entry map (CLSID,
object
implementation), the interface definition and the library associated w
ith the
interface.
```

```
</p>
<p>
We define the interface in IDL as:
</p>

<p>
<PRE><TT><FONT COLOR="#990000">

<font color=#0000aa>#define</font> CPP_QUOTE<font color=#220000>(</fon
t> name <font
color=#220000>)</font> cpp_quote<font color=#220000>(</font> #name <fo
nt
color=#220000>)</font>

<font color=#0000aa>#define</font> MINIMUM_INTERFACE<font color=#22000
0>(</font> RIID,
TYPE, NAME <font color=#220000>)</font>
        \
                                [

\
                                uuid<font color=#220000>(</font> RIID<
font
color=#220000>)</font>,                                         \
                                pointer_default<font color=#220000>(</
font>unique<font
color=#220000>)</font>                                          \
                                ]

\
                                interface I##NAME : IUnknown

\
                                {

\
                                HRESULT Min<font color=#220000>(</font
> [in]TYPE a,
[in]TYPE b, [out]TYPE *pMin <font color=#220000>)</font>;        \
                                };

\
                                cpp_quote<font color=#220000>(</font>
<font
color=#004488>"#ifdef __cplusplus"</font> <font color=#220000>)</font>

\
                                cpp_quote<font color=#220000>(</font>
```

```
<font
color=#004488>"#ifdef __MINIMUM_H_"</font> <font color=#220000>)</font
>
\
                                         CPP_QUOTE<font color=#220000>(</font>
<font
color=#0000ff>extern</font> OLECHAR g_wsz##NAME[]; <font color=#220000
>)</font>
\
                                         CPP_QUOTE<font color=#220000>(</font>
EXTERN_C <font
color=#0000ff>const</font> CLSID CLSID_##NAME; <font color=#220000>)</
font>
\
                                         CPP_QUOTE<font color=#220000>(</font>
<font
color=#0000ff>typedef</font> CMinimumImpl&lt;TYPE <font color=#220000>
)</font>
\
                                         cpp_quote<font color=#220000>(</font>
<font
color=#004488>","</font> <font color=#220000>)</font>

\
                                         CPP_QUOTE<font color=#220000>(</font>
I##NAME <font
color=#220000>)</font>                                              \
                                         cpp_quote<font color=#220000>(</font>
<font
color=#004488>","</font> <font color=#220000>)</font>

\
                                         CPP_QUOTE<font color=#220000>(</font>
&amp;CLSID_##NAME <font color=#220000>)</font>
\
                                         cpp_quote<font color=#220000>(</font>
<font
color=#004488>","</font> <font color=#220000>)</font>

\
                                         CPP_QUOTE<font color=#220000>(</font>
g_wsz##NAME
<font color=#220000>)</font>                                          \
                                         CPP_QUOTE<font color=#220000>(</font>
&gt; C##NAME;
<font color=#220000>)</font>                                          \
                                         cpp_quote<font color=#220000>(</font>
<font
```

color=#004488>"#endif")

\
                                        cpp_quote(
"#endif")

</FONT></TT></PRE>
</p>

<p>
The first part is the declaration of the interface, the second part wr
ite a typedef of
the template implementation in the generated header file. Because the
preprocessor
will think the "," as argument separator, we must use multiple lines.
You can see we
are passing the TYPE, the Interface, the CLSID and the NAME of the obj
ect as template
argument. The name is an extern var, it will be defined later, the int
erface is made
as I appended to the name.
</p>

<p>
We can declare the interface for int and double as follow:
</p>
<p>
<PRE><TT><FONT COLOR="#990000">
MINIMUM_INTERFACE(A91EBC05-87C0-11d2-9947-
C26F54DDB3BE,
int, MinimumInt)
MINIMUM_INTERFACE(A91EBC09-87C0-11d2-9947-
C26F54DDB3BE,
double, MinimumDouble)

</FONT></TT></PRE>
</p>
<p>
The interfaces generated will be: IMinimumDouble and IMinimumInt.
</p>
<p>
But it's not over, we must declare the name which will be written in t
he registry.
</p>
<p>
Here are the macros:

```
</p>
<p>
<PRE><TT><FONT COLOR="#990000">
<font color=#0000aa>#define</font> BEGIN_NAME_MAP<font color=#220000>(
</font><font
color=#220000>)</font> cpp_quote<font color=#220000>(</font> <font
color=#004488>"#define NAME_MAP() \\"</font> <font color=#220000>)</fo
nt>
<font color=#0000aa>#define</font> END_NAME_MAP<font color=#220000>(</
font><font
color=#220000>)</font>    cpp_quote<font color=#220000>(</font><font c
olor=#004488>"
"</font><font color=#220000>)</font>
<font color=#0000aa>#define</font> NAME_ENTRY<font color=#220000>(</fo
nt>NAME<font
color=#220000>)</font>  CPP_QUOTE<font color=#220000>(</font> OLECHAR
g_wsz##NAME[] =
L#NAME;\\ <font color=#220000>)</font>
</FONT></TT></PRE>
</p>
<p>
```
The macro BEGIN_NAME_MAP define a macro in the generated header file. Calling that
macro once in a .cpp file will define the name for all your objects in
 the map. So we
must add:
```
</p>

<p>
<PRE><TT><FONT COLOR="#990000">
BEGIN_NAME_MAP<font color=#220000>(</font><font color=#220000>)</font>
        NAME_ENTRY<font color=#220000>(</font> MinimumInt <font color=
#220000>)</font>
        NAME_ENTRY<font color=#220000>(</font> MinimumDouble <font
color=#220000>)</font>
END_NAME_MAP<font color=#220000>(</font><font color=#220000>)</font>
</FONT></TT></PRE>
</p>
<p>
```
Now we will generate another macro in the genarated header file to add
 all objects in
the object map.
```
</p>
<p>
<PRE><TT><FONT COLOR="#990000">
<font color=#0000aa>#define</font> BEGIN_OBJECT_MAP<font color=#220000
>(</font><font
color=#220000>)</font>  cpp_quote<font color=#220000>(</font> <font
```

```
color=#004488>"#define OBJECT_MAP() \\"</font> <font color=#220000>)</
font>
<font color=#0000aa>#define</font> END_OBJECT_MAP<font color=#220000>(
</font><font
color=#220000>)</font>  cpp_quote<font color=#220000>(</font><font col
or=#004488>"
"</font> <font color=#220000>)</font>
<font color=#0000aa>#define</font> OBJECT_ENTRY<font color=#220000>(</
font>NAME<font
color=#220000>)</font>  CPP_QUOTE<font color=#220000>(</font> OBJECT_E
NTRY<font
color=#220000>(</font> CLSID_##NAME, C##NAME <font color=#220000>)</fo
nt> \\ <font
color=#220000>)</font>
</FONT></TT></PRE>
</p>
```

```
<p>
We use it in the IDL file like that:
</p>
```

```
<p>
<PRE><TT><FONT COLOR="#990000">
BEGIN_OBJECT_MAP<font color=#220000>(</font><font color=#220000>)</fon
t>
        OBJECT_ENTRY<font color=#220000>(</font> MinimumInt <font
color=#220000>)</font>
        OBJECT_ENTRY<font color=#220000>(</font> MinimumDouble <font
color=#220000>)</font>
END_OBJECT_MAP<font color=#220000>(</font><font color=#220000>)</font>
</FONT></TT></PRE>
</p>
```

```
<p>
The last step is the library declaration:
</p>
<p>
<PRE><TT><FONT COLOR="#990000">
<font color=#0000aa>#define</font> BEGIN_LIBRARY<font color=#220000>(<
/font><font
color=#220000>)</font>
        \
                        [
        \
                        uuid<font
color=#220000>(</font>0968E542-87B7-11D2-9947-C26F54DDB3BE<font
color=#220000>)</font>, \
                        version<font color=#220000>(</font>1.0
```

```
                                    templateinterface[1]
<font
color=#220000>)</font>,                                                    \
                                    helpstring<font color=#220000>(</font>
<font
color=#004488>"codeguru 1.0 Type Library"</font><font color=#220000>)<
/font>
\
                                    ]
            \
                                    library CODEGURULib
            \
                                    {
            \
                                            importlib<font color=#220000>(</font><
font
color=#004488>"stdole32.tlb"</font><font color=#220000>)</font>;

\
                                            importlib<font color=#220000>(</font><
font
color=#004488>"stdole2.tlb"</font><font color=#220000>)</font>;


<font color=#0000aa>#define</font> END_LIBRARY<font color=#220000>(</f
ont><font
color=#220000>)</font> };

<font color=#0000aa>#define</font> LIBRARY_ENTRY<font color=#220000>(<
/font> CLSID,
NAME <font color=#220000>)</font>                                          \
                                    [                                      \
                                            uuid<font color=#220000>(</font>CLSID<
font
color=#220000>)</font>                            \
                                    ]                                      \
                                    coclass NAME                           \
                                    {                                      \
                                            [<font color=#0000ff>default</font>] i
nterface
I##NAME;            \
                                    };
</FONT></TT></PRE>
</p>
<p>
It look like this for our two objects:
</p>
<p>
<PRE><TT><FONT COLOR="#990000">
```

```
BEGIN_LIBRARY<font color=#220000>(</font><font color=#220000>)</font>
        LIBRARY_ENTRY<font color=#220000>(</font>
A91EBC0E-87C0-11d2-9947-C26F54DDB3BE, MinimumInt <font color=#220000>)
</font>
        LIBRARY_ENTRY<font color=#220000>(</font>
A91EBC11-87C0-11d2-9947-C26F54DDB3BE, MinimumDouble <font color=#22000
0>)</font>
END_LIBRARY<font color=#220000>(</font><font color=#220000>)</font>
</FONT></TT></PRE>
</p>


<p><b>
Adding entry in the main object map.
</b></p>
<p>
In your main project file, you must add two lines:
</p>
<p>
<PRE><TT><FONT COLOR="#990000">
NAME_MAP<font color=#220000>(</font><font color=#220000>)</font>  <fon
t
color=#009900>//a macro we have generated </font>

BEGIN_OBJECT_MAP<font color=#220000>(</font>ObjectMap<font color=#2200
00>)</font>
        OBJECT_MAP<font color=#220000>(</font><font color=#220000>)</f
ont>  another
macro we have generated
END_OBJECT_MAP<font color=#220000>(</font><font color=#220000>)</font>
</FONT></TT></PRE>
</p>
<p>
<b>
Conclusion.
</b></p>
<p>
The concept is kind is simple viewing by this angle. But be careful, a
s more
extragavancies usage of the problem the complexity rise as well. Fortu
natly for us, in
the end, the versality usage of the whole would be much greater.
</p>
<p>
<A HREF="templateinterface_src.zip">Download source - 12KB</a>
</p>
<p>
Date Posted: December 1, 1998
</p>
```

```
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";
document.location.href = newLocation;
return;
}
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<br>
<font class="normal" color="#4D4D4D"><b>Compare products, prices, and
stores at
Hardware Central!</b></font>
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on_Applications~
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```

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d-3011669">Digit
al Cameras</A> & <A
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devices</A> & <A
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.NET Professional Edition</A> or search for other development tools<br
>
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